

The Wealth of Networks

How Social Production
Transforms Markets and
Freedom

Yochai Benkler

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STRANGE FRUIT

By Lewis Allan

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Chapter 12 Conclusion: The Stakes of Information Law and Policy

Complex modern societies have developed in the context of mass media and industrial information economy. Our theories of growth and innovation assume that industrial models of innovation are dominant. Our theories about how effective communications in complex societies are achieved center on market-based, proprietary models, with a professional commercial core and a dispersed, relatively passive periphery. Our conceptions of human agency, collective deliberation, and common culture in these societies are embedded in the experience and practice of capital-intensive information and cultural production practices that emphasize proprietary, market-based models and starkly separate production from consumption. Our institutional frameworks reflect these conceptual models of information production and exchange, and have come, over the past few years, to enforce these conceptions as practiced reality, even when they need not be.

This book began with four economic observations. First, the baseline conception that proprietary strategies are dominant in our information production system is overstated. The education system,

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from kindergarten to doctoral programs, is thoroughly infused with nonproprietary motivations, social relations, and organizational forms. The arts and sciences are replete with voluntarism and actions oriented primarily toward social-psychological motivations rather than market appropriation. Political and theological discourses are thoroughly based in nonmarket forms and motivations. Perhaps most surprisingly, even industrial research and development, while market oriented, is in most industries not based on proprietary claims of exclusion, but on improved efficiencies and customer relations that can be captured and that drive innovation, without need for proprietary strategies of appropriation. Despite the continued importance of nonproprietary production in information as a practical matter, the conceptual nuance required to acknowledge its importance ran against the grain of the increasingly dominant thesis that property and markets are the roots of all growth and productivity. Partly as a result of the ideological and military conflict with Communism, partly as a result of the theoretical elegance of a simple and tractable solution, policy makers and their advisers came to believe toward the end of the twentieth century that property in information and innovation was like property in wristwatches and automobiles. The more clearly you defined and enforced it, and the closer it was to perfect exclusive rights, the more production you would get. The rising dominance of this conceptual model combined with the rent-seeking lobbying of industrial-model producers to underwrite a fairly rapid and substantial tipping of the institutional ecology of innovation and information production in favor of proprietary models. The U.S. patent system was overhauled in the early 1980s, in ways that strengthened and broadened the reach and scope of exclusivity. Copyright was vastly expanded in the mid-1970s, and again in the latter 1990s. Trademark was vastly expanded in the 1990s. Other associated rights were created and strengthened throughout these years.

The second economic point is that these expansions of rights operate, as a practical matter, as a tax on nonproprietary models of production in favor of the proprietary models. It makes access to information resources more expensive for all, while improving appropriability only for some. Introducing software patents, for example, may help some of the participants in the one-third of the software industry that depends on sales of finished software items. But it clearly raises the costs without increasing benefits for the two-thirds of the industry that is service based and relational. As a practical matter, the substantial increases in the scope and reach of exclusive rights have adversely affected the operating conditions of nonproprietary producers.

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Universities have begun to seek patents and pay royalties, impeding the sharing of information that typified past practice. Businesses that do not actually rely on asserting patents for their business model have found themselves amassing large patent portfolios at great expense, simply to fend off the threat of suit by others who would try to hold them up. Older documentary films, like *Eyes on the Prize*, have been hidden from public view for years, because of the cost and complexity of clearing the rights to every piece of footage or trademark that happens to have been captured by the camera. New documentaries require substantially greater funding than would have been necessary to pay for their creation, because of the costs of clearing newly expanded rights.

The third economic observation is that the basic technologies of information processing, storage, and communication have made nonproprietary models more attractive and effective than was ever before possible. Ubiquitous low-cost processors, storage media, and networked connectivity have made it practically feasible for individuals, alone and in cooperation with others, to create and exchange information, knowledge, and culture in patterns of social reciprocity, redistribution, and sharing, rather than proprietary, market-based production. The basic material capital requirements of information production are now in the hands of a billion people around the globe who are connected to each other more or less seamlessly. These material conditions have given individuals a new practical freedom of action. If a person or group wishes to start an information-production project for any reason, that group or person need not raise significant funds to acquire the necessary capital. In the past, the necessity to obtain funds constrained information producers to find a market-based model to sustain the investment, or to obtain government funding. The funding requirements, in turn, subordinated the producers either to the demands of markets, in particular to mass-market appeal, or to the agendas of state bureaucracies. The networked information environment has permitted the emergence to much greater significance of the nonmarket sector, the nonprofit sector, and, most radically, of individuals.

The fourth and final economic observation describes and analyzes the rise of peer production. This cluster of phenomena, from free and open-source software to *Wikipedia* and SETI@Home, presents a stark challenge to conventional thinking about the economics of information production. Indeed, it challenges the economic understanding of the relative roles of market-based and nonmarket production more generally. It is important to see these

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phenomena not as exceptions, quirks, or ephemeral fads, but as indications of a fundamental fact about transactional forms and their relationship to the technological conditions of production. It is a mistake to think that we have only two basic free transactional forms—property-based markets and hierarchically organized firms. We have three, and the third is social sharing and exchange. It is a widespread phenomenon—we live and practice it every day with our household members, coworkers, and neighbors. We coproduce and exchange economic goods and services. But we do not count these in the economic census. Worse, we do not count them in our institutional design. I suggest that the reason social production has been shunted to the peripheries of the advanced economies is that the core economic activities of the economies of steel and coal required large capital investments. These left markets, firms, or state-run enterprises dominant. As the first stage of the information economy emerged, existing information and human creativity—each a “good” with fundamentally different economic characteristics than coal or steel—became important inputs. The organization of production nevertheless followed an industrial model, because information production and exchange itself still required high capital costs—a mechanical printing press, a broadcast station, or later, an IBM mainframe. The current networked stage of the information economy emerged when the barrier of high capital costs was removed. The total capital cost of communication and creation did not necessarily decline. Capital investment, however, became widely distributed in small dollops, owned by individuals connected in a network. We came to a stage where the core economic activities of the most advanced economies—the production and processing of information—could be achieved by pooling physical capital owned by widely dispersed individuals and groups, who have purchased the capital means for personal, household, and small-business use. Then, human creativity and existing information were left as the main remaining core inputs. Something new and radically different started to happen. People began to apply behaviors they practice in their living rooms or in the elevator—“Here, let me lend you a hand,” or “What did you think of last night’s speech?”—to production problems that had, throughout the twentieth century, been solved on the model of Ford and General Motors. The rise of peer production is neither mysterious nor fickle when viewed through this lens. It is as rational and efficient given the objectives and material conditions of information production at the turn of the twenty-first century as the assembly line was for the conditions at the turn of the twentieth. The pooling of human creativity and of

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computation, communication, and storage enables nonmarket motivations and relations to play a much larger role in the production of the information environment than it has been able to for at least decades, perhaps for as long as a century and a half.

A genuine shift in the way we produce the information environment that we occupy as individual agents, as citizens, as culturally embedded creatures, and as social beings goes to the core of our basic liberal commitments. Information and communications are core elements of autonomy and of public political discourse and decision making. Communication is the basic unit of social existence. Culture and knowledge, broadly conceived, form the basic frame of reference through which we come to understand ourselves and others in the world. For any liberal political theory—any theory that begins with a focus on individuals and their freedom to be the authors of their own lives in connection with others—the basic questions of how individuals and communities come to know and evaluate are central to the project of characterizing the normative value of institutional, social, and political systems. Independently, in the context of an information- and innovation-centric economy, the basic components of human development also depend on how we produce information and innovation, and how we disseminate its implementations. The emergence of a substantial role for nonproprietary production offers discrete strategies to improve human development around the globe. Productivity in the information economy can be sustained without the kinds of exclusivity that have made it difficult for knowledge, information, and their beneficial implementations to diffuse beyond the circles of the wealthiest nations and social groups. We can provide a detailed and specific account of why the emergence of nonmarket, nonproprietary production to a more significant role than it had in the industrial information economy could offer improvements in the domains of both freedom and justice, without sacrificing—indeed, while improving—productivity.

From the perspective of individual autonomy, the emergence of the networked information economy offers a series of identifiable improvements in how we perceive the world around us, the extent to which we can affect our perceptions of the world, the range of actions open to us and their possible outcomes, and the range of cooperative enterprises we can seek to enter to pursue our choices. It allows us to do more for and by ourselves. It allows us to form loose associations with others who are interested in a particular outcome they share with us, allowing us to provide and explore many more

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diverse avenues of learning and speaking than we could achieve by ourselves or in association solely with others who share long-term strong ties. By creating sources of information and communication facilities that no one owns or exclusively controls, the networked information economy removes some of the most basic opportunities for manipulation of those who depend on information and communication by the owners of the basic means of communications and the producers of the core cultural forms. It does not eliminate the possibility that one person will try to act upon another as object. But it removes the structural constraints that make it impossible to communicate at all without being subject to such action by others.

From the perspective of democratic discourse and a participatory republic, the networked information economy offers a genuine reorganization of the public sphere. Except in the very early stages of a small number of today's democracies, modern democracies have largely developed in the context of mass media as the core of their public spheres. A systematic and broad literature has explored the basic limitations of commercial mass media as the core of the public sphere, as well as its advantages. The emergence of a networked public sphere is attenuating, or even solving, the most basic failings of the mass-mediated public sphere. It attenuates the power of the commercial mass-media owners and those who can pay them. It provides an avenue for substantially more diverse and politically mobilized communication than was feasible in a commercial mass media with a small number of speakers and a vast number of passive recipients. The views of many more individuals and communities can be heard. Perhaps most interestingly, the phenomenon of peer production is now finding its way into the public sphere. It is allowing loosely affiliated individuals across the network to fulfill some of the basic and central functions of the mass media. We are seeing the rise of nonmarket, distributed, and collaborative investigative journalism, critical commentary, and platforms for political mobilization and organization. We are seeing the rise of collaborative filtering and accreditation, which allows individuals engaged in public discourse to be their own source of deciding whom to trust and whose words to question.

A common critique of claims that the Internet improves democracy and autonomy is centered on information overload and fragmentation. What we have seen emerging in the networked environment is a combination of self-conscious peer-production efforts and emergent properties of large systems of human beings that have avoided this unhappy fate. We have seen the adoption of a number of practices that have made for a reasonably navigable

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and coherent information environment without re-creating the mass-media model. There are organized nonmarket projects for producing filtering and accreditation, ranging from the Open Directory Project to mailing lists to like-minded people, like MoveOn.org. There is a widespread cultural practice of mutual pointing and linking; a culture of “Here, see for yourself, I think this is interesting.” The basic model of observing the judgments of others as to what is interesting and valuable, coupled with exercising one’s own judgment about who shares one’s interests and whose judgment seems to be sound has created a pattern of linking and usage of the Web and the Internet that is substantially more ordered than a cacophonous free-for-all, and less hierarchically organized and controlled by few than was the mass-media environment. It turns out that we are not intellectual lemmings. Given freedom to participate in making our own information environment, we neither descend into Babel, nor do we replicate the hierarchies of the mass-mediated public spheres to avoid it.

The concepts of culture and society occupy more tenuous positions in liberal theory than autonomy and democracy. As a consequence, mapping the effects of the changes in information production and exchange on these domains as aspects of liberal societies is more complex. As to culture, the minimum that we can say is that the networked information environment is rendering culture more transparent. We all “occupy” culture; our perceptions, views, and structures of comprehension are all always embedded in culture. And yet there are degrees to which this fact can be rendered more or less opaque to us as inhabitants of a culture. In the networked information environment, as individuals and groups use their newfound autonomy to engage in personal and collective expression through existing cultural forms, these forms become more transparent—both through practice and through critical examination. The mass-media television culture encouraged passive consumption of polished, finished goods. The emergence of what might be thought of as a newly invigorated folk culture—created by and among individuals and groups, rather than by professionals for passive consumption—provides both a wider set of cultural forms and practices and a better-educated or better-practiced community of “readers” of culture. From the perspective of a liberal theory unwilling simply to ignore the fact that culture structures meaning, personal values, and political conceptions, the emergence of a more transparent and participatory cultural production system is a clear improvement over the commercial, professional mass culture of the twentieth century. In the domain of social relations, the degree of autonomy and the

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loose associations made possible by the Internet, which play such an important role in the gains for autonomy, democracy, and a critical culture, have raised substantial concerns about how the networked environment will contribute to a further erosion of community and solidarity. As with the Babel objection, however, it appears that we are not using the Internet further to fragment our social lives. The Internet is beginning to replace twentieth-century remote media—television and telephone. The new patterns of use that we are observing as a result of this partial displacement suggest that much of network use focuses on enhancing and deepening existing real-world relations, as well as adding new online relations. Some of the time that used to be devoted to passive reception of standardized finished goods through a television is now reoriented toward communicating and making together with others, in both tightly and loosely knit social relations. Moreover, the basic experience of treating others, including strangers, as potential partners in cooperation contributes to a thickening of the sense of possible social bonds beyond merely co-consumers of standardized products. Peer production can provide a new domain of reasonably thick connection with remote others.

The same capabilities to make information and knowledge, to innovate, and to communicate that lie at the core of the gains in freedom in liberal societies also underlie the primary advances I suggest are possible in terms of justice and human development. From the perspective of a liberal conception of justice, the possibility that more of the basic requirements of human welfare and the capabilities necessary to be a productive, self-reliant individual are available outside of the market insulates access to these basic requirements and capabilities from the happenstance of wealth distribution. From a more substantive perspective, information and innovation are central components of all aspects of a rich meaning of human development. Information and innovation are central to human health—in the production and use of both food and medicines. They are central to human learning and the development of the knowledge any individual needs to make life richer. And they are, and have for more than fifty years been known to be, central to growth of material welfare. Along all three of these dimensions, the emergence of a substantial sector of nonmarket production that is not based on exclusivity and does not require exclusion to feed its own engine contributes to global human development. The same economic characteristics that make exclusive rights in information a tool that imposes barriers to access in advanced economies make these rights a form of tax on technological latecom-

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ers. What most poor and middle-income countries lack is not human creativity, but access to the basic tools of innovation. The cost of the material requirements of innovation and information production is declining rapidly in many domains, as more can be done with ever-cheaper computers and communications systems. But exclusive rights in existing innovation tools and information resources remain a significant barrier to innovation, education, and the use of information-embedded tools and goods in low- and middle-income countries. As new strategies for the production of information and knowledge are making their outputs available freely for use and continuing innovation by everyone everywhere, the networked information economy can begin to contribute significantly to improvements in human development. We already see free software and free and open Internet standards playing that role in information technology sectors. We are beginning to see it take form in academic publishing, raw information, and educational materials, like multilingual encyclopedias, around the globe. More tentatively, we are beginning to see open commons-based innovation models and peer production emerge in areas of agricultural research and bioagricultural innovation, as well as, even more tentatively, in the area of biomedical research. These are still very early examples of what can be produced by the networked information economy, and how it can contribute, even if only to a limited extent, to the capacity of people around the globe to live a long and healthy, well-educated, and materially adequate life.

If the networked information economy is indeed a significant inflection point for modern societies along all these dimensions, it is so because it upsets the dominance of proprietary, market-based production in the sphere of the production of knowledge, information, and culture. This upset is hardly uncontroversial. It will likely result in significant redistribution of wealth, and no less importantly, power, from previously dominant firms and business models to a mixture of individuals and social groups on the one hand, and on the other hand businesses that reshape their business models to take advantage of, and build tools and platforms for, the newly productive social relations. As a practical matter, the major economic and social changes described here are not deterministically preordained by the internal logic of technological progress. What we see instead is that the happenstance of the fabrication technology of computation, in particular, as well as storage and communications, has created technological conditions conducive to a significant realignment of our information production and exchange system. The actual structure of the markets, technologies, and social practices that

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have been destabilized by the introduction of computer-communications networks is now the subject of a large-scale and diffuse institutional battle.

We are seeing significant battles over the organization and legal capabilities of the physical components of the digitally networked environment. Will all broadband infrastructures be privately owned? If so, how wide a margin of control will owners have to prefer some messages over others? Will we, to the contrary, permit open wireless networks to emerge as an infrastructure of first and last resort, owned by its users and exclusively controlled by no one? The drives to greater private ownership in wired infrastructure, and the push by Hollywood and the recording industry to require digital devices mechanically to comply with exclusivity-respecting standards are driving the technical and organizational design toward a closed environment that would be more conducive to proprietary strategies. Open wireless networks and the present business model of the large and successful device companies—particularly, personal computers—to use open standards push in the opposite direction. End-user equipment companies are mostly focused on making their products as valuable as possible to their users, and are therefore oriented toward offering general-purpose platforms that can be deployed by their owners as they choose. These then become equally available for market-oriented as for social behaviors, for proprietary consumption as for productive sharing.

At the logical layer, the ethic of open standards in the technical community, the emergence of the free software movement and its apolitical cousin, open-source development practices, on the one hand, and the anti-authoritarian drives behind encryption hacking and some of the peer-to-peer technologies, on the other hand, are pushing toward an open logical layer available for all to use. The efforts of the content industries to make the Internet manageable—most visibly, the DMCA and the continued dominance of Microsoft over the desktop, and the willingness of courts and legislatures to try to stamp out copyright-defeating technologies even when these obviously have significant benefits to users who have no interest in copying the latest song in order not to pay for the CD—are the primary sources of institutional constraint on the freedom to use the logical resources necessary to communicate in the network.

At the content layer—the universe of existing information, knowledge, and culture—we are observing a fairly systematic trend in law, but a growing countertrend in society. In law, we see a continual tightening of the control that the owners of exclusive rights are given. Copyrights are longer, apply

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to more uses, and are interpreted as reaching into every corner of valuable use. Trademarks are stronger and more aggressive. Patents have expanded to new domains and are given greater leeway. All these changes are skewing the institutional ecology in favor of business models and production practices that are based on exclusive proprietary claims; they are lobbied for by firms that collect large rents if these laws are expanded, followed, and enforced. Social trends in the past few years, however, are pushing in the opposite direction. These are precisely the trends of networked information economy, of nonmarket production, of an increased ethic of sharing, and an increased ambition to participate in communities of practice that produce vast quantities of information, knowledge, and culture for free use, sharing, and follow-on creation by others.

The political and judicial pressures to form an institutional ecology that is decidedly tilted in favor of proprietary business models are running head-on into the emerging social practices described throughout this book. To flourish, a networked information economy rich in social production practices requires a core common infrastructure, a set of resources necessary for information production and exchange that are open for all to use. This requires physical, logical, and content resources from which to make new statements, encode them for communication, and then render and receive them. At present, these resources are available through a mixture of legal and illegal, planned and unplanned sources. Some aspects come from the happenstance of the trajectories of very different industries that have operated under very different regulatory frameworks: telecommunications, personal computers, software, Internet connectivity, public- and private-sector information, and cultural publication. Some come from more or less widespread adoption of practices of questionable legality or outright illegality. Peer-to-peer file sharing includes many instances of outright illegality practiced by tens of millions of Internet users. But simple uses of quotations, clips, and mix-and-match creative practices that may, or, increasingly, may not, fall into the narrowing category of fair use are also priming the pump of nonmarket production. At the same time, we are seeing an ever-more self-conscious adoption of commons-based practices as a modality of information production and exchange. Free software, Creative Commons, the Public Library of Science, the new guidelines of the National Institutes of Health (NIH) on free publication of papers, new open archiving practices, librarian movements, and many other communities of practice are developing what was a contingent fact into a self-conscious social movement. As

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the domain of existing information and culture comes to be occupied by information and knowledge produced within these free sharing movements and licensed on the model of open-licensing techniques, the problem of the conflict with the proprietary domain will recede. Twentieth-century materials will continue to be a point of friction, but a sufficient quotient of twenty-first-century materials seem now to be increasingly available from sources that are happy to share them with future users and creators. If this social-cultural trend continues over time, access to content resources will present an ever-lower barrier to nonmarket production.

The relationship of institutional ecology to social practice is a complex one. It is hard to predict at this point whether a successful sustained effort on the part of the industrial information economy producers will succeed in flipping even more of the institutional toggles in favor of proprietary production. There is already a more significant social movement than existed in the 1990s in the United States, in Europe, and around the world that is resisting current efforts to further enclose the information environment. This social movement is getting support from large and wealthy industrial players who have reoriented their business model to become the platforms, tool-makers, and service providers for and alongside the emerging nonmarket sector. IBM, Hewlett Packard, and Cisco, for example, might stand shoulder to shoulder with a nongovernment organization (NGO) like Public Knowledge in an effort to block legislation that would require personal computers to comply with standards set by Hollywood for copy protection. When Hollywood sued Grokster, the file-sharing company, and asked the Supreme Court to expand contributory liability of the makers of technologies that are used to infringe copyrights, it found itself arrayed against amicus briefs filed by Intel, the Consumer Electronics Association, and Verizon, SBC, AT&T, MCI, and Sun Microsystems, alongside briefs from the Free Software Foundation, and the Consumer Federation of America, Consumers Union, and Public Knowledge.

Even if laws that favor enclosure do pass in one, or even many jurisdictions, it is not entirely clear that law can unilaterally turn back a trend that combines powerful technological, social, and economic drivers. We have seen even in the area of peer-to-peer networks, where the arguments of the incumbents seemed the most morally compelling and where their legal successes have been the most complete, that stemming the tide of change is difficult—perhaps impossible. Bits are a part of a flow in the networked information environment, and trying to legislate that fact away in order to

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preserve a business model that sells particular collections of bits as discrete, finished goods may simply prove to be impossible. Nonetheless, legal constraints significantly shape the parameters of what companies and individuals decide to market and use. It is not hard to imagine that, were Napster seen as legal, it would have by now encompassed a much larger portion of the population of Internet users than the number of users who actually now use file-sharing networks. Whether the same moderate levels of success in shaping behavior can be replicated in areas where the claims of the incumbents are much more tenuous, as a matter of both policy and moral claims—such as in the legal protection of anticircumvention devices or the contraction of fair use—is an even harder question. The object of a discussion of the institutional ecology of the networked environment is, in any event, not prognostication. It is to provide a moral framework within which to understand the many and diverse policy battles we have seen over the past decade, and which undoubtedly will continue into the coming decade, that I have written this book.

We are in the midst of a quite basic transformation in how we perceive the world around us, and how we act, alone and in concert with others, to shape our own understanding of the world we occupy and that of others with whom we share it. Patterns of social practice, long suppressed as economic activities in the context of industrial economy, have now emerged to greater importance than they have had in a century and a half. With them, they bring the possibility of genuine gains in the very core of liberal commitments, in both advanced economies and around the globe. The rise of commons-based information production, of individuals and loose associations producing information in nonproprietary forms, presents a genuine discontinuity from the industrial information economy of the twentieth century. It brings with it great promise, and great uncertainty. We have early intimations as to how market-based enterprises can adjust to make room for this newly emerging phenomenon—IBM's adoption of open source, Second Life's adoption of user-created immersive entertainment, or Open Source Technology Group's development of a platform for Slashdot. We also have very clear examples of businesses that have decided to fight the new changes by using every trick in the book, and some, like injecting corrupt files into peer-to-peer networks, that are decidedly not in the book. Law and regulation form one important domain in which these battles over the shape of our emerging information production system are fought. As we observe these battles; as we participate in them as individuals choosing how to behave and

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what to believe, as citizens, lobbyists, lawyers, or activists; as we act out these legal battles as legislators, judges, or treaty negotiators, it is important that we understand the normative stakes of what we are doing.

We have an opportunity to change the way we create and exchange information, knowledge, and culture. By doing so, we can make the twenty-first century one that offers individuals greater autonomy, political communities greater democracy, and societies greater opportunities for cultural self-reflection and human connection. We can remove some of the transactional barriers to material opportunity, and improve the state of human development everywhere. Perhaps these changes will be the foundation of a true transformation toward more liberal and egalitarian societies. Perhaps they will merely improve, in well-defined but smaller ways, human life along each of these dimensions. That alone is more than enough to justify an embrace of the networked information economy by anyone who values human welfare, development, and freedom.

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